KINGDOM OF SAUDI ARABIA

COUNTRY PROFILE

**IMPLEMENTATION OF AGENDA 21:
REVIEW OF PROGRESS MADE SINCE THE
UNITED NATIONS CONFERENCE ON
ENVIRONMENT AND DEVELOPMENT, 1992**

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*United Nations Department for Policy Coordination and Sustainable Development
Division for Sustainable Development
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KINGDOM OF SAUDI ARABIA

This country profile has been provided by:

Name of Ministry/Office: Ministerial Committee on Environment (MCE)

Date: 26 September 1997

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All statistics are rendered as provided by the respective Governments.

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ACRONYMS

APELL	Awareness and Preparedness for Emergencies at Local Level
CFC	chlorofluorocarbon
CGIAR	Consultative Group on International Agriculture Research
CILSS	Permanent Inter-State Committee on Drought Control in the Sahel
EEZ	Eeclusive economic zone
ECA	Economic Commission for Africa
ECE	Economic Commission for Europe
ECLAC	Economic Commission for Latin America and the Caribbean
ELCI	Environmental Liaison Centre International
EMINWA	Environmentally sound management of inland water
ESCAP	Economic and Social Commission for Asia and the Pacific
ESCWA	Economic and Social Commission for Western Asia
FAO	Food and Agriculture Organization of the United Nations
GATT	General Agreement on Tariffs and Trade
GAW	Global Atmosphere Watch (WMO)
GEF	Global Environment Facility
GEMS	Global Environmental Monitoring System (UNEP)
GEMS/WATER	Global Water Quality Monitoring Programme
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Pollution
GIPME	Global Investigation of Pollution in Marine Environment (UNESCO)
GIS	Geographical Information System
GLOBE	Global Legislators Organisation for a Balanced Environment
GOS	Global Observing System (WMO/WWW)
GRID	Global Resource Information Database
GSP	Generalized system of preferences
HIV	Human immunodeficiency virus
IAEA	International Atomic Energy Agency
IAP-WASAD	International Action Programme on Water and Sustainable Agricultural Development
IARC	International Agency for Research on Cancer
IBSRAM	International Board of Soil Resources and Management
ICCA	International Council of Chemical Associations
ICES	International Council for the Exploration of the Sea
ICPIC	International Cleaner Production Information Clearing House
ICSC	International Civil Service Commission
ICSU	International Council of Scientific Unions
IEEA	Integrated environmental and economic accounting
IFAD	International Fund for Agricultural Development
IGADD	Intergovernmental Authority for Drought and Development
IGBP	International Geosphere-Biosphere Programme (ICSU)
IGBP/START	International Geosphere-Biosphere Programme/Global Change System for Analysis, Research and Training
ILO	International Labour Organisation
IMF	International Monetary Fund
IMO	International Maritime Organization
INFOTERRA	International Environment Information system (UNEP)
IOC	Intergovernmental Oceanographic Commission
IPCC	Intergovernmental Panel on Climate Change
IPCS	International Programme on Chemical Safety
IPM	integrated pest management
IRPTC	International Register of Potentially Toxic Chemicals
ITC	International Tin Council
ITTO	International Tropical Timber Organization

ACRONYMS (Cont'd)

IUCN	International Union for Conservation of Nature and Natural Resources
MARPOL	International Convention for the Prevention of Pollution from Ships
OECD	Organisation for Economic Cooperation and Development
PGRFA	plant genetic resources for agriculture
PIC	prior informed consent procedure
SADCC	South African Development Co-ordination Conference
SARD	Sustainable agriculture and rural development
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNDRO	Office of the United Nations Disaster Relief Coordinator
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
UNU	United Nations University
WCP	World Climate Programme (WMO/UNEP/ICSU/UNESCO)
WFC	World Food Council
WHO	World Health Organization
WMO	World Meteorological Organization
WWF	World Wide Fund for Nature (also called World Wildlife Fund)
WWW	World Weather Watch (WMO)

NATIONAL ACRONYMS

DGMR	Directorate General for Mineral Resources
GPGE	General Presidency for Girls' Education
KACST	King AbdulAziz City for Science and Technology
MAW	Ministry of Agriculture and Water
MCE	Ministerial Committee on Environment
ME	Ministry of Education
MEPA	Meteorology and Environmental Protection Agency
MFA	Ministry of Foreign Affairs
MFNE	Ministry of Finance and National Economy
MI	Ministry of Interior
MIE	Ministry of Industry and Electricity
MH	Ministry of Health
MOMRA	Ministry of Municipalities and Rural Affairs
MOP	Ministry of Planning
MPMR	Ministry of Petroleum and Mineral Resources
MPWH	Ministry of Public Works and Housing
NCWCD	National Comission for Wildlife Conservation and Development
PERSGA	Red Sea and Gulf of Aden Environment Program
ROPME	Regional Organization for Protection of the Marine Environment
SABIC	Saudi Arabian Basic Industries Corporation
SAUDI ARAMCO	Government owned oil company
SWCC	Saline Water Conversion Corporation

OVERVIEW

(You may wish to use pages v and vi to briefly present your national position five years after UNCED)

OVERVIEW (Cont'd)

(You may wish to use pages v and vi to briefly present your national position five years after UNCED)

FACT SHEET

NAME OF COUNTRY: Kingdom of Saudi Arabia

1. Name of Key National Sustainable Development Coordination Mechanism(s)/Council(s).
Ministerial Committee on Environment (MCE)

Contact point (Name, Title, Office):
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2. Membership/Composition/Chairperson:

2a. List of ministries and agencies involved:
The Ministerial Committee on Environment (MCE), chaired by HRH Prince Sultan Bin Abdulaziz, the Second Deputy Premier and Minister of Defense and Aviation and Inspector General, is the highest institutional authority for environment and related issues including Agenda 21 in the Kingdom.

The relevant sectoral ministries included in the MCE are Agriculture and Water, Municipal and Rural Affairs, Industry and Electricity, Health, Petroleum and Mineral Resources, Foreign Affairs, Interior, Finance and National Economy. Other than these ministries, King AbdulAziz City for Science and Technology (KACST), Meteorology and Environmental Protection Administration (MEPA), National Commission for Wildlife Conservation and Development (NCWCD) are also members of MCE.

MEPA President acts as Secretary-General of the MCE.

2b. Names of para-statal bodies and institutions involved, as well as participating of academic and private sector bodies:
King Abdulaziz City for Science and Technology (KACST), Meteorology and Environmental Protection Administration (MEPA), National Commission For Wildlife Conservation and Development (NCWCD).

2c. Names of non-governmental organizations involved:
Environmental Society

3. Mandate role of above mechanism/council:
MCE's functions and responsibilities are : (i) to formulate National Environmental Strategy (ii) to coordinate and follow-up on environmental activities within the Kingdom and (iii) to establish the Kingdom's position on environmental issues at the national, regional and international levels.

4. If available, attach a diagram (organization chart) showing national coordination structure and linkages between ministries:

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AGENDA 21 CHAPTER 2: **INTERNATIONAL COOPERATION TO ACCELERATE SUSTAINABLE DEVELOPMENT IN DEVELOPING COUNTRIES AND RELATED DOMESTIC POLICIES (with special emphasis on TRADE)**

NATIONAL PRIORITY:	
STATUS REPORT: No Information.	

Cross-Sectoral Issues

1. **Decision-Making Structure:** No Information.

2. **Capacity-Building/Technology Issues:** No Information.

3. **Major Groups:** No Information.

4. **Finance:** No Information.

5. **Regional/International Cooperation:** No Information.

STATISTICAL DATA/INDICATORS					

AGENDA 21 CHAPTER 3: COMBATING POVERTY

NATIONAL PRIORITY:	
STATUS REPORT: **No Information.** ! Focus of national strategy ! Highlight activities aimed at the poor and linkages to the environment **No Information.**	

Cross-Sectoral Issues

1. **Decision-Making Structure:** **No Information.**

2. **Capacity-Building/Technology Issues:** **No Information.**

3. **Major Groups:** **No Information.**

4. **Finance:** **No Information.**

5. **Regional/International Cooperation:** **No Information.**
NB: Developed countries, where domestic poverty alleviation is not a major concern may wish to briefly describe their position regarding global poverty alleviation.

STATISTICAL DATA/INDICATORS

	1985	1990	1992	Latest 199_	
Unemployment (%)					
Population living in absolute poverty					
Public spending on social sector %					
Other data					

AGENDA 21 CHAPTER 4: CHANGING CONSUMPTION PATTERNS

NATIONAL PRIORITY:	
STATUS REPORT: **! National policy objectives/focus No Information.** **! National targets No Information.**	

Cross-Sectoral Issues

1. **Decision-Making Structure:** **No Information.**

2. **Capacity-Building/Technology Issues:** **No Information.**

3. **Major Groups:** **No Information.**

4. **Finance:** **No Information.**

5. **Regional/International Cooperation:** **No Information.**

STATISTICAL DATA/INDICATORS

	1985	1990	1992	Latest 199_	
GDP per capita (current US$)					
Real GDP growth (%)					
Annual energy consumption per capita (Kg. of oil equivalent per capita)					
Motor vehicles in use per 1000 inhabitants					
Other data					

AGENDA 21 CHAPTER 5: DEMOGRAPHIC DYNAMICS AND SUSTAINABILITY

NATIONAL PRIORITY:	
STATUS REPORT: No Information.	

Cross-Sectoral Issues

1. **Decision-Making Structure:** No Information.

2. **Capacity-Building/Technology Issues:** No Information.

3. **Major Groups:** No Information.

4. **Finance:** No Information.

5. **Regional/International Cooperation:** No Information.

STATISTICAL DATA/INDICATORS				
	1990	1993	Latest 199_	
Population (Thousands) mid-year estimates				
Annual rate of increase (1990-1993)				
Surface area (Km^2)				
Population density (people/Km^2)				
Other data				

AGENDA 21 CHAPTER 6: PROTECTING AND PROMOTING HUMAN HEALTH

NATIONAL PRIORITY:

STATUS REPORT:

Health

The Ministry of Health (MOH) of the Kingdom of Saudi Arabia has made progress in most health and environmental areas listed in Agenda 21.

1. Protection and enhancement of human health:

A. The budget of MOH is 4.9 percent of the total budget of the State.

B. Primary health care centers total 1,725, with a rate of 10,353 persons per center, and the services cover all villages and hamlets in all parts of the Kingdom. These centers provide both curative and preventive primary health care services, particulary immunization, mother and child care, and environmental sanitation services.

C. The ratio of physicians to population is 1 : 1,154, and of dentist, 1 : 14,734.

D. In the area of current disease control, that of incidence per 100,000 population declined from 1991 to 1995 as follows:

Disease	Rate of incident per 100,000 persons in 1991	Rate of incident per 100,000 persons in 1995
Meningitis	3.77	1.79
Hepatitis	68.25	30.98
Shigellosis (dysentary)	12.22	6.85
Typhoid and Paratyphoid	8.12	1.87

The MOH implemented a comprehensive national program for tuberculosis control, and the ratio of incidence of pulmonary tuberculosis in the total population has dropped from about 17 : 100,000 in 1991 to 11:52 : 100,000 in 1995. Inoculation coverage in targeted diseases in 1995 was as follows:

Disease	Percentage
Diphtheria, pertussis (whooping cough) tetanus, and polio (DPTP)	96.0
Hepatitis - B	94.7
Measles	94.4
Tuberculosis	94.1
Mumps, and Rubella	92.0

Accordingly, incidence rates for these diseases have dropped noticeably. Through the comprehensive national anti-polio campaign launched in the late 1995, 2,000,000 children under the age of five were given two doses of the vaccine.

2. National Strategy for Health and Environment:

The Council of Ministers Decree number 78 dated 3/7/1415 H, was issued to approve the recommendations of MCE. Recommendation number 2.5 provides for the composition of a nationwide technical task force chaired by MOH and with membership from MAW, MOMRA, the Ministry of Planning, MEPA, and certain relevant agencies; it is charged with preparing a draft national strategy for health and the environment in the Kingdom.

3. Special Programs for Chemical Safety (CHEMSAFE):
MOH conducted a specialized national training course in the area of chemical safety, disaster preparedness, and management in collaboration with the World Health Organization (WHO). Officials and specialists from relevant ministries and agencies participated with the aim of developing skills in the areas of chemical safety, the role of curative and preventive medicine in preparedness for addressing chemical accidents, exchange of information, finding a coordinated approach among relevant agencies, and raising public awareness of chemical safety issues. Coordination with WHO is under way with a view to establishing an information network for the environment, chemical safety, and addressing emergencies.

4. Support of National Plans related to Hazardous Waste:
A. The Current situation in MOH and private sector hospitals has been studied and coordination with the relevant agencies achieved with a view to finding effective approaches for the disposal of hazardous materials in proper scientific ways.

B. A number of offers submitted by certain companies to engage in collection, transport, and processing the disposal of waste by the most modern means and technologies that take into consideration environmental factors with a view to choosing among technologies and formulating the necessary criteria and controls for practicing this activity.

5. Public Health System:
The Minister of Health issued a decree providing for the formation of a committee charged with preparing a comprehensive public health system for the Kingdom with a view to improvement of work in MOH departments and upgrading the standard of health services.

6. Difficulties and Constraints:
1 - Overlap of functions and competencies among agencies concerned with environmental issues and activities.
2 - Lack of coordination among agencies concerned and their irregular meetings for consideration of urgent and new environmental issues.
3 - The need for material support of health and environmental activities.
4 - Lack of databases and an information network which could link agencies concerned with the environment.
5 - Shortage of highly-qualified specialists in health and environmental sciences.

Proposals:
1. Enactment of legislation and rules which provide a regulatory framework concerned with terms of reference of each agency related to the environment.
2. Invitation of committees concerned with the environment to regularly scheduled meetings in order to consider urgent and new environmental issues.
3. Action for establishment of information databases, networks and centers at and among agencies concerned with the environment in order to facilitate exchange of information and expertise in this vital area.
4. Provision of the resources necessary for achievement of the objectives and programs listed in the recommendations of Agenda 21, and various environmental activities.
5. Provision of the necessary posts and support in order to attract specialized staff capable of keeping abreast of the numerous new developments in this area, and the progress of development in the Kingdom.
6. Support of training and scholarship programs with a view to upgrading natinal cadres engaged in the area of public health and the environment.

Achievements in the Area of Environmental Health and its Improvement:

1. Sound environmental management of solid waste:

A. A draft has been prepared for the terms and conditions for utilization of certain waste components, in order to facilitate private sector participation in establishing projects for recycling and re-using solid waste.

B. An investor has been awarded a contract for the treatment of waste in Jeddah, Riyadh, Qassim and Hail.

2. Control of the risks to environmental and human health from pesticides:

A. Consumption of insecticides was reduced nationwide at a rate of 22.1 percent during the period 1406-1416 H (1985-95) and the consumption of pesticide dilutants was reduced at a rate of 61 percent over the same period.

B. Expansion of use in recent years of non-traditional pesticides such as phenomenal insect control and other biological materials has reduced the usage of chemical pesticides known to have a negative impact on the environment.

C. Preparation and disemmination of terms and conditions for licensing companies and enterprises dealing with insect control in government and private sector buildings.

3. Nutritional safety:

A. Health monitoring records have been updated and prepared.

B. A manual of guidelines for health control officers has been prepared.

C. A task force has been formed to visit, in groups, various parts of the Kingdom in order to oversee provision of health conditions in outlets related to public health.

Preventive Medicine and Operation Safety:

Within the framework of health regulations applicable in the company, Saudi Aramco adheres to protection against ailment and disease that may arise in areas of its facilities and operations, by means of application of the best available practices in preventive medicine. The company controls diseases arsing from food and water pollution through monitoring and control of the operations of the sewage treatment plants. A health education program has been prepared in the company to increase staff awareness and training in areas of cardio-pulmonary resuscitation (CPR), chemical hazards, safety measures, and (first aid) treatment of patient. Through this program, (awareness) material is developed as well as the production of films and the dissemination of information. On the other hand, the program monitors occupational health hazards existing at the workplace, offers advice on how to minimize them, and monitors the health of staff vulnerable to these hazards.

Company activities related to safety are designed to prevent or minimize the occurrence of accidents and therefore aim primarily at the prevention of loss in humans, as well as in hydrocarbons, and other materials which may have negative impact on the atmospheric, aquatic, and terrestrial environment. Training in handling and disposal of hazardous and toxic materials is considered part of the daily activities of the company.

Saudi Aramco's Plan for the Conservation of the Environment:

Saudi Aramco's plan for the conservation of the environment states that the company guarantees that its operations will not cause unnecessary hazards which damage the environment or the public health, and will be carried out with the utmost care for the protection of the land, the air, and the water from harmful pollution. Each department in Saudi Aramco is responsible for guaranteeing the design and operation of its facilities in compliance with this plan, and ensuring that they will not cause unnecessary hazards to the environment of public health.

Cross-Sectoral Issues

1. **Decision-Making Structure:**

   The Ministry of Health takes charge of health care and hospitals. See under "Status Report."

2. **Capacity-Building/Technology Issues:** See under "Status Report."

3. **Major Groups: No Information.**

4. **Finance:** The budget of the Ministry of Health is 4.9% of the total budget of the state.

5. **Regional/International Cooperation: No Information.**

STATISTICAL DATA/INDICATORS

	1980	1990	Latest 199_	
Life expectancy at birth Male Female				
Infant mortality (per 1000 live births)				
Maternal mortality rate (per 100000 live births)				
Access to safe drinking water (% of population)				
Access to sanitation services (% of population)				
Other data				

AGENDA 21 CHAPTER 7: PROMOTING SUSTAINABLE HUMAN SETTLEMENT DEVELOPMENT

NATIONAL PRIORITY:

STATUS REPORT:

Public Utilities:

1. The following has been achieved:

A. Water networks have been expanded nationwide, to a total length of 33 million meters, and with a total of 823,000 household connections. By the end of the Sixth Five-Year Plan, 36 projects for drinking water are expected to have been implemented in towns not yet covered by the services of the water and sewerage directorates, at a cost of SR 556 million (U.S. $180 million).

B. Sewerage networks nationwide total 8,883,000 meters, with 532,000 connections; this is in addition to storm drains in the major cities and numerous towns suffering from rain and flood problems. It is expected that 186 sewage projects will be implemented at a cost of SR 30 billion (U.S. $9 billion) and 30 storm drains at a cost of SR 1.437 billion (U.S. $0.4 billion).

2. Urban Planning:

The following has been achieved:

A. Planning for the provision of utilities, services and infrastructure projects:

By the end of the Fifth Five-Year (1990-1995), the Kingdom had provided services, utilities and housing for everybody. MOMRA played an effective role in implementing projects within its jurisdiction.

B. Rationalizing expenditure on utility services and limiting haphazard growth of towns:

Interim boundaries of urban expansion have been identified to alleviate the pressure of demand on utility networks to supply scattered residential areas lying far away from urban blocks and allowing for use of the surplus capacity of the existing utility networks.

C. Devising strategies aimed at addressing consequences of population growth through comprehensive supervision of urban development. MOMRA also prepared a long-term strategy for guiding urban planning, based on a set of long-term and specific national development objectives.

D. Adopting an integrated approach to planning land use:

Acquisition of land is considered one of the most essential fundamentals for the provision of housing as well as production and services activities for the population. Since the increasing cost of land is considered an impediment to the provision of appropriate housing for everybody, the government of the Kingdom has adopted a system that ensures citizens' ownership of land for building houses through government grants and the provision of interest-free loans. The current activities of MOMRA in this area are:

1. A comprehensive compilation of land grants as a basic step for establishing an integrated information system related to land use in urban areas.
2. Adoption of special controls, regulations and rules for implementing grants and prioritizing sites for land grants in conformity with the national objectives regarding rationalization of expenditure on utility services and the achievement of an inter-related urban matrix.
3. Use of scientific means and modern technology for management of land resources and organization of its use such as GIS, remote sensing technology and digital map production which are essential for the planning and management of land resources.

E. Improvement of the quality of the urban environment:

MOMRA is also making great efforts to improve the quality of the urban environment through planning for the provision of urban infrastructures and the enhancement of public utilities.

The most important activities achieved are:

1. Urban heritage programs which aim at protection and repair of historic buildings as well as cultural antiquities.
2. Development of city centers with a view to restoring their role as commercial and cultural focal points.
3. Involvement of municipalities in increasing environmental awareness.

Cross-Sectoral Issues

1. **Decision-Making Structure:**

The Ministry of Municipalities and Rural Affairs takes charge of :
- the administration of municipalities throughout the Kingdom.
- the planning of cities and towns.
- the development of roads and basic infrastructure.
- the management and maintenance of services to keep cities and towns clean and healthy.

2. **Capacity-Building/Technology Issues:** See under "Status Report."

3. **Major Groups: No Information.**

4. **Finance:** See under "Status Report."

5. **Regional/International Cooperation: No Information.**

STATISTICAL DATA/INDICATORS

	1990	1995	
Urban population in % of total population			
Annual rate of growth of urban population (%)			
Largest city population (in % of total population)			
Other data			

AGENDA 21 CHAPTER 8: INTEGRATING ENVIRONMENT AND DEVELOPMENT IN DECISION-MAKING

(See pages vii and viii at the beginning of the profile)

NATIONAL PRIORITY:

STATUS REPORT:

Environmental Protection, Awareness, Education and Planning

1. Environmental Protection:

-MCE has prepared, adopted and approved a general environmental system for the Kingdom.

- MEPA has prepared a plan for the management of coastal areas in the Kingdom with the aim of conservation of the marine environment and natural habitats, and the prevention of their degradation as a result of land-based activities with a view to sustainable utilization of marine and coastal resources.

- Environmental assessment is incorporated in feasibility studies of projects and facilities. MEPA, in collaboration with the consent of the relevant agencies, has prepared the procedural and executive regulations as well as the appropriate mechanisms for environmental protection.

- Implementation of the requirements of the Agenda 21, certain governmental agencies such as MOP, MOI and MAW have established units to oversee environmental assessment of projects, and develop the principles and criteria necessary for environmental protection and pollution control. Among the tasks of these units is acting as liaison with MEPA, the central environmental body.

- MEPA has conducted a field of study of toxic chemicals and hazardous waste in the Kingdom. The purpose of the study was to draw up policies and future executive plans for management of hazardous toxic materials in the Kingdom.

- MEPA, in collaboration with the relevant agencies, has formulated standards for environmental protection (and management of) hazardous and toxic materials in the Kingdom, including criteria and standards for storage, transportation, and treatment as well as final disposal of such waste.

- MEPA has prepared a file called "The Environment File" for the city of Jeddah, covering a study of water and air quality which includes measuring the quality of ambient air using a mobile air quality laboratory and listing the sources of water pollution such as sewage and industrial effluent, and taking samples of ground and sea water from various locations.

- MEPA has prepared a final draft for updating the standards of water and air quality in order to avert the shortcomings of current standards.

- With respect to strengthening the application of the national plan for control of oil pollution and other harmful materials, MEPA, in collaboration with other agencies concerned has made a list of pollution control equipment; and in collaboration with the Ministry of Petroleum and Mineral Resources (Saudi Aramco Company) has prepared guidelines for the Kingdom's pollution and control operations.

- With respect to degradation of the marine environment as a result of land-based activities, the agencies concerned in the Kingdom are implementing a protocol for protection of the marine environment against pollutants from sea-based sources (sic). In this respect, the Kingdom cooperates with the Regional Organization for Protection of Marine Environment (ROPME) and the Red Sea and Gulf of Aden Environment Program (PERSGA).

- The agencies concerned in the Kingdom support regional and international conventions for the protection of the environment, and participate with the international community in this respect including application of such conventions and financial contributions.

2. Environmental Planning:

The most important achievements of MOP in this respect can be summarized as follows:

1 - An environment unit has been established within the studies and research department of the Ministry, and its terms of reference have been specified.

2 - In preparing the Sixth Five-Year Development Plan (1415-1420 H) (1995-1999), the term "environmental" has been added to the analysis request form to read: "economic, social and environmental analysis form" and adhered to in collecting data from all government agencies and consequently in related operational plans.

3 - Among the general objectives and strategic principles for the Sixth Five-Year Development Plan (1415-1420 H), the tenth strategic principle provides for environmental conservation, protection, and enhancement as well as prevention of pollution.

Cross-Sectoral Issues

1. **Decision-Making Structure (please also refer to the fact sheet):**
The Meteorology and Environmental Protection Agency takes charge of meteorology and the environment. See under "Status Report".

2. **Capacity-Building/Technology Issues: See under "Status Report".**

3. **Major Groups:** No information.

4. **Finance:** No information.

5. **Regional/International Cooperation: No information.**

AGENDA 21 CHAPTER 9: PROTECTION OF THE ATMOSPHERE

NATIONAL PRIORITY:

STATUS REPORT:

The Committee for Coordination on Chlorofluorocarbons (CFCs) monitors the company's activities related to the consumption, handling, and keeping of such materials, and formulates strategies in accordance with the provision of the Montreal Protocol. An example of the activities of this committee is Saudi Aramco's program for the conservation of cooling materials, which sets mandatory requirements for the handling and re-processing of CFCs. Implementation was recently initiated for a technical program and another for monitoring consumption of chillers in Aramco. The committee has completed consumption projections, and plans to limit, or ban, the use of solvents containing CFCs, and to find alternatives to such ozone-depleting materials. There are similar efforts to use halon gases.

Encouragement of the Use of Substitutes for Chlorofluorocarbons (CFCs):

Within the framework of a national strategy, plants are gradually stopping the use of certain ozone-layer depleting chemicals such as the chlorofluorocarbons (CFCs), and are shifting to the use of substitute materials in application of the frame of action of the Montreal Protocol and the requirements of Agenda 21.

Existing Environmental Activities and Programs:

These activities are basically related to monitoring of the quality of air and wastewater, management of hazardous materials, and response to accidents of oil spills. They also include assessment of Saudi Aramco operations, study of the marine environment, protection of groundwater sources, and determination of adherence to the regulations of the company and of the Kingdom. Below is a brief review of these and other activities related to the environment:

- Program for monitoring air quality and the meteorological system:

Air quality specifications in Saudi Aramco have been designed according to applicable standards in the Kingdom, which include upper limits for sulfur dioxide and particulates that may be inhaled, photochemical oxidants, nitrogen oxides, carbon monoxide, and hydrogen sulfide; and specifications for emission sources from 7 industrial categories including (gas) flaring, petroleum and petrochemical facilities. The company continues to conduct follow-up studies to monitor ancillary facilities, modifications and operation changes that should be carried out in order to enhance the performance of existing facilities. There are now 9 stations operating at full capacity in various parts of the Kingdom for the monitoring of air quality and for meteorological purposes. Data produced by these stations are analyzed, compiled into an annual report, and sent to the competent government agency (MEPA) in order to state the level of adherence to applicable specifications and regulations. Construction of the main gas network for collection, refining and utilization of associated gas has led to the establishment of a facility capable of extracting more than 3,500 tons of elemental sulfur per day, or more than 90 percent of the sulfur associated with crude oil. Naturally, this has contributed to improving the quality of air, particularly in the Eastern Province of the Kingdom of Saudi Arabia.

- Program for the study of emissions and their impact on ambient air:

This program has been prepared according to engineering specifications applied in the company with the aim of assessing adherence of new projects and enhanced facilities to standards applied in the Kingdom with respect to the quality of ambient air. Projections of the potential impact on the quality of ambient air in a particular area of Saudi Aramco projects are made within the framework of this program, and the results are used as needed in taking measures that ensure reduction of such impact.

- Matters related to chlorofluorocarbons (CFCs):

The Committee for Coordination of Chlorofluorocarbons Materials has formulated a program dealing with matters related to such materials within the framework of the Montreal Protocol. This program aims primarily at drawing a precise listing of

the cooling systems used in the company which utilize CFCs, determining substitute elements, the requirements and equipment needed to replace these systems, as well as preparing and implementing a program for keeping and reprocessing together with approved replacements, or modification of operation programs for the equipment using R-11, R-12 and R-502. It now uses R-134 as a substitute for R-12 in water and air coolers. Reserve quantities have been procured for organized transition to new CFC or halon materials.

The Montreal Protocol and its Amendments

* Montreal Protocol (1987) : Saudi Arabia acceded on 01 March 1993.
* London Amendment (1990) : Saudi Arabia acceded 01 March 1993.
* Copenhagen Amendment (1992) : Saudi Arabia acceded on 01 March 1993.

United Nations Framework Convention on Climate Change

* Saudi Arabia acceded to UNFCCC on 28 December 1994.

Additional comments relevant to this chapter

Cross-Sectoral Issues

1. **Decision-Making Structure:** **No Information.**

2. **Capacity-Building/Technology Issues:** **No Information.**

3. **Major Groups:** **No Information.**

4. **Finance:** **No Information.**

5. **Regional/International Cooperation:** **No Information.**

STATISTICAL DATA/INDICATORS

	1980	1990	Latest 199-	
CO_2 emissions (eq. million tons)				
SO_x "				
NO_x "				
CH_4 "				
Consumption of ozone depleting substances (Tons)				
Expenditure on air pollution abatement in US$ equivalents (million)				
Other data				

AGENDA 21 CHAPTER 10: INTEGRATED APPROACH TO THE PLANNING AND MANAGEMENT OF LAND RESOURCES

NATIONAL PRIORITY:

STATUS REPORT:

Land Resources Management and Investment Study:
MAW completed a study of the land resources of the Kingdom which included the following:
A. Definition and identification of agricultural climatic regions and land resources units.
B. Assessment of vulnerability of these units to the risks of degradation, erosion, salinization, and inundation, which range from light to high risk.

Under this study, the Kingdom is divided into 3,176 terrestrial units shown on maps of a scale of 1:500,000 and contained in an atlas of land resources which was recently published. Data on the characteristics, specific negative factors, risks, and areas of each terrestrial unit are collected in a computer database (attached is a list of the elements of this database).

The maps are being entered into the computer in order to prepare a comprehensive geographical information system (GIS). MAW plans to conduct detailed studies of cultivated areas with the aim of establishing the negative factors which determine the production of crops, identifying the environmental hazards, and monitoring land degradation with a view to making recommendations which include appropriate farming methods and standards that serve optimal and sustainable utilization of soil and water resources. This program includes identification of areas affected by degradation on maps of a scale of 1:50,000.

The detailed study of cultivated land aims at establishing suitability of various locations for different types of utilization, and will in turn assist in making recommendations on appropriate farming methods with a view to sustainability and increase of production from available utilization options taking into account economic and social variable factors.

National Parks:
A number of national parks have been established such as Asir National Park, an area of 450,000 hectares, in the Asir Highlands; the Al-Hasa National Park, an area of 4,500 hectares; and the Sa'ad National Park, east of Riyadh along the highway to Dammam, an area of 300 hectares planted with suitable trees and supplied with all necessary services. There are new projects for converting suitable areas into national parks such as Al-Baha, Thumama, Hurayymila, Haysiyya, and Najran.

Cross-Sectoral Issues

1. Decision-Making Structure:

The Ministry of Agriculture and Water takes charge of :

- implementation of economic plans and programs for agriculture.
- water development.
- desalination, irrigation, conservation of scarce water, fisheries, animal resources and locust control.

2. Capacity-Building/Technology Issues: No Information.

3. Major Groups: No Information.

4. Finance: No Information.

5. Regional/International Cooperation: No Information.

AGENDA 21 CHAPTER 11: COMBATING DEFORESTATION

NATIONAL PRIORITY:

STATUS REPORT:

Development of Forestry Vegetation Cover

1.Issue of regulations and legislation:

The following was achieved in this respect:

A. The Forest and Rangeland Regulations were issued by Royal Decree Number M/22 dated 3/5/1398 H.

B. The Ministry of Agriculture and Water (MAW) issued Executive Regulations for the Forest and Rangeland Regulations Number 11/3081 dated 23/5/1398 H, which is concerned with "protecting the vegetation and the land of forests and rangelands, and regulating their use and utilization."

C. MAW and the Ministry of the Interior issued regulations on 2/7/1399 H, to control violations and institute penalties on violators of the Forest and Rangeland Regulations.

D. Royal Order Number 1182/8 dated 5/7/1405 H, was issued to provide for the conservation of forestland and the prevention of any person laying claim to such land.

E. Royal Order Number 4/3620/M dated 5/7/1407 H, was issued to regulate exploitation of sand and pebbles.

2. Survey and inventory of forests:

MAW initiated a survey and inventory of forests by recruiting a specialized company to carry out aerial photography of 70,000 square kilometers of the southwestern part of the Kingdom. Aerial photography and interpretation will shortly be completed for the rest of the natural forest areas.

3. Guarding:

More than 150 forest wardens have been appointed to control forest areas and report any violations in order that the competent authorities can carry out the procedures provided for in the Forest and Rangeland Regulations.

4. Afforestation:

Trees have been planted in 53 locations of degraded forestland in various areas of the Kingdom in addition to particular afforestation locations for fixing sand dunes. Treated sewage water (wastewater) has been used for irrigation of certain afforested locations in Taif and is being utilized in Riyadh and other areas. Water from dams is currently being used for irrigating certain afforested areas.

5. Nurseries for forestry saplings:

MAW has established 30 forestry nurseries in various areas of the Kingdom, with an annual production capacity of about 1,000,000 saplings. The capacity of these nurseries can be increased as needed to produce saplings which are suitable for the various environments of the Kingdom.

6. Education and training:

MAW has been training specialized technical staff in forestry and afforestation by availing opportunities to numerous employees to attend specialized courses. The MAW also approached the Ministry of Higher Education to open a Department of Forestry and Rangelands at King Saud University for granting a bachelor's degree in order to meet the increasing need for such specialization. This program will be launched in the coming academic year, 1997-98.

7. Constraints facing development and protection of forestry resources:

Forests in Saudi Arabia are considered one of the renewable natural resources that play an important role in the ecosystem of the Kingdom in view of its extensive area and diverse environment. This renewable natural resource provides protection to such areas by preserving the soil from water and wind erosion. It also helps in the distribution of water and control of its flow, and consequently the increased moisture in the soil. In addition, forests have economic, recreational, scenic, tourist and climatic moderating values. The most important problems facing the development and protection of this resource are the following:

A. Harsh environmental conditions:
Among the constraints and determining factors which restrict expansion in the forestry development program particularly in increasing the afforested areas, are the location of the Kingdom in the dry desert belt whose climate is characterized by scarcity of rain, dominance of drought throughout the year, high temperatures especially in summer, and lack of adequate quantities of water or rivers.

B. Felling of trees and shrubs:
People in the Kingdom traditionally use wood and charcoal for heating in winter and cooking on (special) occasions. This is still the custom in spite of the availability of electricity, (butane) gas and other petroleum derivatives at token prices. Felling living trees for the above purposes has caused shrinkage of acreage covered by natural trees and shrubs. To regulate or restrict this process, MAW introduced a licensing system for utilization of dry (dead) plants (for obtaining firewood, for producing charcoal, or for transporting either of these). The impact of these new regulations is evident, as a result of public awareness campaigns on the importance of maintaining trees and shrubs, as well as applying penalties for violators. There are still unlicensed operations of felling and transporting trees and shrubs. Efforts of the agencies concerned should be stepped-up and coordinated to apply this regulation in order to adhere to the rules which aim at protecting natural vegetation resources from extinction.

C. Urban expansion in forest areas:
Expansion of residential masterplans due to the development boom in the Kingdom, particularly in the southwestern region, caused an overlap of forest areas and urban planning of towns, villages and residential centers, and removal of extensive areas of forest for such purposes.

D. High cost of re-forestation of areas which had lost their natural vegetation cover:
Scarcity of water, low soil fertility, high temperature, and low rainfall have all contributed to shrinkage of afforested areas and suitable imported species or similar local species are needed to compensate for lost trees. Provision of all or part of these conditions requires allocation of adequate amounts of money.

E. Shortage of forestry specialists:
The number of forestry specialists is considered very low relative to the programs to be implemented in this area, such as the inventory of forest areas, or the evaluation, development or monitoring of such activities.

Development of Rangeland Vegetation Cover:
1. Establishment of large and small enclosures:
MAW established 24 enclosures, each with an area ranging between 250 donums and 87,000 donums. Some of these enclosures are designed for rangeland and environmental studies and others as reserves for natural fodder to be opened up for grazing in years of drought. Conservation of such rangelands led to noticeable improvement in vegetation cover and pasture productivity.

2. Construction of animal feed silos:
MAW constructed 14 silos (warehouses) each with a capacity of about 12,000 tons, distributed over various regions of the Kingdom, in order to store animal feed for distribution whenever needed as part of a plan to create the necessary feed reserve to address years of drought. The total storage capacity of these silos is 168,000 tons of feed. This quantity is adequate to preserve the life of about 3.7 million head of sheep for three months during years of drought (assuming that a head of sheep needs daily one half of a kilogram of enriched feed and some coarse fodder to preserve its life). By establishing such silos and rangeland enclosures, MAW will have insured part of its fodder requirements and protected its livingstock wealth against the risks of drought.

3. Rain and flood water spreading and distribution over rangelands:
MAW is engaged in constructing earth embankments and dams in order to spread and distribute surface runoff water over rangelands with the aim of developing vegetation cover and improving the quantity and quality of their pasture production. It

has constructed 32 storage and diversion dams on the major wadi (valley) courses. The height of such dams ranges between 2.5 and 4.0 meters, serving an area of about 18,000 donums. MAW also constructed a network of small earth embankments with a height ranging between 75 cms and 150 cm (0.75 to 1.5 meters) along the contour lines perpendicular to the general slope of the area in question (sic). More than 600 contour earth embankments have been c-constructed with a total length of about 200 kilometers, serving an area of 200,000 donums. The construction of such embankments has noticeable improved the vegetation cover of the areas concerned.

4. Cultivation of degraded rangeland

MAW imported about 18,000 kilograms of seeds of 52 different species of trees, shrubs, and perennial grass from Australia, USA, Chile, Pakistan, Syria, Egypt and Tunisia. Seeds of trees and shrubs were planted while grass seed were sown in two ways:

- seed broadcasting and covering after soil preparation
- seed drilling (row sowing) along contours

The total cultivated acreage is about 100,000 donums in 16 areas. Degraded rangelands have improved noticeably.

5. Establishment of stations for propagation of local range plant seeds:

MAW established stations for propagation of species of local range seeds in order to produce adequate sees for various programs. A seed production station has been established at Buseita in the northern part of the Kingdom, where 22 species of perennial range seeds have been planted, which produce about 4 tons of range seeds annually. Two other stations are under construction, one at Shagra in Al-Washam, and the other Qat'a Al-Murshid in Abha. Plans are underway to establish a fourth station at Zahran in the southern part of the Kingdom.

6. Bank for seed and plant genetic strains:

The National Center for Agriculture and Water Research in collaboration with departments and research centers of the Ministry and other scientific institutions in the Kingdom are establishing a bank for collecting and keeping seeds and genetic plant strains in the Kingdom with a view to utilizing them in the development of species and varieties to be grown as well as for the development of both rangeland and forest natural plant cover.

7. Protection of meadows:

Certain meadows which are characterized by particular plant cover have been enclosed and protected against the entry of vehicles. Their plant cover is being developed with a view to preservation of biological diversity and creation of recreational areas for the citizens.

Cross-Sectoral Issues

1. **Decision-Making Structure:**

The Ministry of Agriculture and Water takes charge of :

- Implementation of economic plans and programs for agriculture.
- Water development.
- Desalination, irrigation, conservation of scarce water, fisheries, animal resources and locust control.

See also under "Status Report" , 1. Issue of Regulations and Legislation.

2. **Capacity-Building/Technology Issues:** See under "Status Report."

3. **Major Groups: No Information.**

4. **Finance: No Information.**

5. **Regional/International Cooperation: No Information.**

STATISTICAL DATA/INDICATORS

	1985	1990	Latest 199-	
Forest Area (Km^2)				
Protected forest area				
Roundwood production (solid volume of roundwood without bark in mill m^3)				
Deforestation rate (Km^2/annum)				
Reforestation rate (Km^2/annum)				
Other data				

AGENDA 21 CHAPTER 12: MANAGING FRAGILE ECOSYSTEMS: COMBATING DESERTIFICATION AND DROUGHT

NATIONAL PRIORITY:	
STATUS REPORT: **International Convention to Combat Desertification in Countries Experiencing Drought and/or Desertification Particularly in Africa** * Saudi Arabia acceded on 25 June 1997. **Additional comments relevant to this chapter**	

Cross-Sectoral Issues

1. Decision-Making Structure:

The Ministry of Agriculture and Water takes charge of :

- Implementation of economic plans and programs for agriculture.
- Water development.
- Desalination, irrigation, conservation of scarce water, fisheries, animal resources and locust control.
- MAW is currently preparing a national strategy and action program for desertification control.
- MAW is about to prepare a booklet on the Kingdom's efforts in the area of desertification control.

2. Capacity-Building/Technology Issues:

Desertification:

1. An international workshop was held on sustainable use of rangelands and desertification control on November 3 to 6, 1996, in collaboration with the International Fund for Agricultural Development (IýFAD).

3. Major Groups: No Information.

4. Finance: No Information.

5. Regional/International Cooperation: No Information.

STATISTICAL DATA/INDICATORS

	1980	1990	Latest 199	
Land affected by desertification (Km^2)				
Other data				

AGENDA 21 CHAPTER 13: MANAGING FRAGILE ECOSYSTEMS: SUSTAINABLE MOUNTAIN DEVELOPMENT

NATIONAL PRIORITY:	
STATUS REPORT: **No Information**	

Cross-Sectoral Issues

1. **Decision-Making Structure:** No Information.

2. **Capacity-Building/Technology Issues:** No Information.

3. **Major Groups:** No Information.

4. **Finance:** No Information.

5. **Regional/International Cooperation:** No Information.

STATISTICAL DATA/INDICATORS

AGENDA 21 CHAPTER 14: PROMOTING SUSTAINABLE AGRICULTURE AND RURAL DEVELOPMENT

NATIONAL PRIORITY:

STATUS REPORT:

Sustainable Agriculture and Rural Development:

1. Most important achievements:
Practical and tangible measures have been taken in realizing the recommendations of Agenda 21 as follows:
- the development of infrastructure for agricultural services and their support by specialized staff,
- the development of human resources working in the agricultural sector through intensification of training, public awareness campaigns, extension services and organization of agricultural exhibitions;
- the development of mass media means and updating of agricultural information methods with a view to gaining the confidence of recipients;
- encouragement of various research projects in areas of agriculture and maintaining continued and close cooperation with research agencies in the Kingdom;
- maintenance of degraded agricultural land by restricting improper use of soil through encouragement of growing diversified food crops, adoption of agricultural crop rotation, construction of draining systems, improvement of crop characteristics by controlled use of fertilizers, containment of soil erosion, monitoring of the problems of salinity and waterlogging, construction of dams, and control of desertification;
- encouragement of the use of modern means of irrigation which are widely used particularly in areas with limited water resources, and giving support to projects which are based on modern irrigation technologies;
- establishment of national companies for marketing and development of, and control systems for, domestic markets, support for agriculture exports, monitoring the supply and demand sides of agricultural products and surplus, as well as support for establishment of various agricultural industries;
- use of integrated agricultural pest control by introducing pesticide substitutes such as biological, mechanical, legislative and pest-resistant varieties of control techniques, in order to maintain environmental equilibrium, an example of this being implementation of a current successful program for control of red insects on date palms in certain parts of the Kingdom whereby the integrated control approach has produced good results, with emphasis placed on application of preventive safety measures with respect to pesticides through proper optimal storage, use and disposal of waste as well as paying attention to the health of agricultural workers, public and environmental health; under higher leadership directives, there is noticeable joint activity among a number of government agencies for the investigation and study of limiting the use of pesticides and disposal of hazardous waste, and national networks, database as well as autonomous and specialized agencies will be established for monitoring environmental pollution by pesticides and their hazards to public health;
- reclamation of new agricultural land after assessment and establishing suitability for agricultural utilization. Such land will be allotted free of charge to persons capable of investing in it;
- participation in activities of committees, conferences and symposia organized by local agencies and international organizations related to enhancement of agricultural production, protection of the environment, national safety and control of illegal trade in pesticides.

2. Constraints and difficulties:
- slowness in the steps of coordination among various government agencies regarding creation of an advanced common database particularly in the area of chemical materials;
- shortage of specialized staff, particularly executive branches in contact with the rural sector;
- lack of completeness in appropriate service facilities (structures and equipment) in executive branches;
- research studies that are not keeping pace with existing and planned activities;
- shortage of available national labor force in the area of agricultural production and difficulty of dealing with and relaying information to transitory expatriate labor.

3. Proposed recommendations for action and priorities for the future:
- enhancement and expansion of the capabilities of research centers with a view to increasing their ability to find effective solutions to the problems associated with the existing agricultural development such as extracting plant strains which are resistant to certain ineradicable agricultural diseases and pests as well as improving their chemical and biological resistance;
- acceleration of establishing an advanced data base which facilitates not only research and the implementation and monitoring of activities related to agricultural production and marketing as well as various environmental affairs, but also production of information regarding toxic chemical materials;
- paying more attention to the support of executive branches, supplying them with trained human resources and completing their equipment which will improve their services;
- finding a system to do away with traditional systems of irrigation and encourage use of modern technology systems of irrigation;
- enhancement of research on safe alternatives to agricultural pesticides and encouragement of environmental less harmful pesticides and fertilizers;
- acceleration of applying national safety programs in order to find appropriate rules for use, storage, transport and disposal of toxic and hazardous chemical materials; and
- encouragement of exchange of visits and experiences with technically advanced countries in the areas of non-chemical control and use of training possibilities provided by regional and international cooperation programs.

Cross-Sectoral Issues

1. Decision-Making Structure:

The Ministry of Agriculture and Water takes charge of :

- Implementation of economic plans and programs for agriculture.
- Water development.
- Desalination, irrigation, conservation of scarce water, fisheries, animal resources and locust control.

2. Capacity-Building/Technology Issues: See under "Status Report."

3. Major Groups: No Information.

4. Finance: No Information.

5. Regional/International Cooperation: No Information.

STATISTICAL DATA/INDICATORS

	1985	1990	Latest 199_	
Agricultural land (Km^2)				
Agricultural land as % of total land area				
Agricultural land per capita				
	1989/90	**1992/93**	**Latest 199_**	
Consumption of fertilizers per Km^2 of agricultural land as of 1990				
Other data				

AGENDA 21 CHAPTER 15: CONSERVATION OF BIOLOGICAL DIVERSITY

NATIONAL PRIORITY:

STATUS REPORT:

National Parks:

A number of national parks have been established such as Asir National Park, an area of 450,000 hectares, in the Asir Highlands; the Al-Hasa National Park, an area of 4,500 hectares; and the Sa'ad National Park, east of Riyadh along the highway to Dammam, an area of 300 hectares planted with suitable trees and supplied with all necessary services. There are new projects for converting suitable areas into national parks such as Al-Baha, Thumama, Taif, Hurayymila, Haysiyya, and Najran.

Convention on Biological Diversity **No Information.**

Convention on International Trade in Endangered Species of Wild Fauna and Flora
No Information.

Additional comments relevant to this chapter

Cross-Sectoral Issues

1. **Decision-Making Structure:** No Information.

2. **Capacity-Building/Technology Issues:** No Information.

3. **Major Groups:** No Information.

4. **Finance:** No Information.

5. **Regional/International Cooperation:** No Information.

STATISTICAL DATA/INDICATORS			
	1992	Latest 199_	
Protected area as % of total land area			
	1990	Latest 199_	
Number of threatened species			
Other data			

AGENDA 21 CHAPTER 16: ENVIRONMENTALLY SOUND MANAGEMENT OF BIOTECHNOLOGY

NATIONAL PRIORITY:	
STATUS REPORT: No Information.	

Cross-Sectoral Issues

1. **Decision-Making Structure: No Information.**

2. **Capacity-Building/Technology Issues: No Information.**

3. **Major Groups: No Information.**

4. **Finance: No Information.**

5. **Regional/International Cooperation: No Information.**

STATISTICAL DATA/INDICATORS

AGENDA 21 CHAPTER 17: PROTECTION OF THE OCEANS, ALL KINDS OF SEAS, INCLUDING ENCLOSED AND SEMI-ENCLOSED SEAS, AND COASTAL AREAS AND THE PROTECTION, RATIONAL USE AND DEVELOPMENT OF THEIR LIVING RESOURCES

NATIONAL PRIORITY:

STATUS REPORT:

Sustainable Utilization of Marine Resources:

The most important achievements of the fisheries sector with respect to Agenda 21 are the following:

1. conservation of fish stock

- identification of fishing means and equipment in a manner that would not negatively impact the fish stock, the most important being determination of appropriate mesh size of all nets used in the waters of the Kingdom in order to allow small fish and other marine creatures to escape;
- development of the traditional fishing sector and modernization of fishing means by use of engines for propelling boats as well as improvement of material for boatmaking, provision of soft loans and increase in the awareness of fishermen;
- identification of periods for banning the catch of certain types of fish and shrimps in order to protect them from depletion as has been the case during the period of banning for the catch of shrimps and both *najil* and *taradi* fish;
- temporary suspension of the issue of new fishing licenses or registration of new means of fishing to prevent increased fishing from causing deterioration of fish stocks as has happened in certain countries;
- establishment and development of fish farms have been completed in marine coastal areas and inland water bodies in order to alleviate pressure on certain economic species of the fish stocks which are amenable to farming, with 98 projects currently licensed for fish farming;
- prohibition of disposal of solid waste and effluents in sea water, except in coordination with the relevant competent authorities;
- identification of certain environmentally sensitive marine zones has been completed and these have been made into protected areas in order to conserve places of propagation, growth and nursing of fry and other marine life;
- completion of studies which aim at replanting various coastal areas of the Red Sea and the Arabian Gulf with mangrove plants due to their effective environmental importance, mangroves being considered the most suitable environment for the propagation, growth and nursing of fry and other marine creatures, in coordination with the National Parks Directorate and SWCC. A specialized expert has been recruited to oversee the replanting of the mangroves;
- surveys have been conducted to identify suitable coastal land for fish farming with a view to sustainable development, including about 10,000 hectares in the area between Jeddah and the southern borders of the Kingdom. Some plots are to be distributed to investors and two large projects are being implemented for this purpose at certain locations. During the survey, ecologically sensitive as well as nursing and feeding grounds were identified.

2. MAW, in cooperation with SWCC through the Jubail Station, monitors the marine environment regularly, follows any changes as a result of pollution, and gives early warning.

3. In order to conserve important coastlines and restore to their natural state those affected, MAW protected shrimp hatching and feeding areas in the Arabian Gulf and in the area of Gizan and the Red Sea. Fishing is banned in the Arabian Gulf from January to the beginning of August, and on the Red Sea from March to August. Both *najil* and *taradi* fishing was banned for two consecutive years during the time of propagation, and only this year has this ban been lifted in order to determine the impact of such protection.

4. Strains of certain freshwater fish have been enhanced and acclimatized to living in sea water, and subjected to propagation and breeding, and licenses have been issued to projects for commercial fish farming. Artificial propagation of certain species of shrimp has been successful for improvement of genetic characteristics. Certain species such as *nimr* and *abyyadh* shrimps have been released into the sea in order to revive stocks of them. A study has been prepared for re-stocking the Arabian Gulf with shrimp through the establishment of incubators.

5. To encourage environmentally-sound technology, MAW has prohibited and banned all indiscriminate activities of catching fish and other aquatic creatures, such as the use of toxic chemicals and electric shock; designated appropriate mesh sizes fo nets, in order to protect small fish; and promoted the use of modern fishing techniques which ensure protection and effective catches designed to reduce secondary fishing and wastage of fish, in addition to the use of modern marine farming systems which take the environment into consideration.

6. MAW has set up environmental protection measures designed to restrict the handling of living fish with a view to protecting fish stocks and the marine environment, and to ensure the safety and quality of the Kingdom's fish products.
7. Within the general plan for increasing efficiency, the Ministry trained and sent on scholarships, a number of its staff; three have obtained doctorate degrees, and five masters' degrees, in addition to the many who attended specialized training courses.
8. For sustainable conservation and utilization of living marine resources under national jurisdiction, MAW established the Saudi Fisheries Company. This is a joint stock company 40 percent of whose shares are owned by the State, and the major part of its interest is in marketing. In record time, Saudi Fisheries had set up 52 outlets for the sale of fish and other marine products. These outlets are designed to the highest standards, where seafood is handled under appropriate environmental conditions that ensure the quality of the product.
9. MAW has also encouraged Saudi businessmen to invest in industrial fishing projects, and support services on the eastern and western coasts of the Kingdom. At present, there is a total of 7,312 fishing boats, and 2,069 fishermen, in addition to the 11,772 expatriate laborers working on these boats.

Future plans

1. Completion of updating the regulations for fishing, investment and protection of living aquatic resources.
2. Completion of updating the strategies designed for the development of fish resources and farms, and the sustainable protection of their natural environment.
3. Completion of coastal surveys and study of pollutants in the coastal environment with the aim of optimal management of such zones.

Research / studies on the Marine Environment:

Research conducted under environmental studies can be listed under the following broad categories:
- Collection of basic data for habitats studies including complementary data on physical, chemical and hydrographical criteria.
- Studies monitoring pre- and post-construction/operation of facilities.
- Studies related to oil spills.

The company has started the preparation of a number of environmental research/studies in collaboration with local universities and private institutions. Most of these studies are related to the marine environment and are being prepared within the framework of a continuing research project in Saudi Aramco in collaboration with King Fahd University of Petroleum and Minerals (KFUPM). Below is an overview of the two phases of this project, which have been recently been completed.

- Saudi Aramco Continuing Research Project:
Marine Environmental Studies - Phase I, 1984-1989:
This project covered long-term environment research on certain parts of coastal bays and off-shore areas along the western part of the Arabian Gulf. These studies determined the relative importance of biological creatures. A map was produced on the habitats of living creatures and their quantitative contribution to the local marine ecosystem with particular reference to fishing and the impact of filling and drainage (land reclamation) on these creatures. Oceanographic studies were utilized for the development of a database for the region, preparation of hydrodynamic models to uncover pollution and actual developments that occur in oceans. The final report of the project is composed of 11 parts detailing the research conducted during the period 1984- 1989.

- Saudi Aramco Continuing Research Project:
Marine Environment Studies - Phase II, 1990 - 1994:
This project is an extension of the previous continuing research project. The main objectives of these studies are the

monitoring of the impact of measures taken by Saudi Aramco with a view to reducing the expenses of the environmental study, the time needed for completion of specific site assessments, future development of the hydrodynamic models, and pollution transfer models. Other tasks included the assessment of changes in the beaches due to filling, monitoring changes related to factors such as oil spills, dredging in coral reefs, producing a detailed map of the habitats of living creatures in the Kingdom's coastal areas along the Arabian Gulf, and designing a model of sedimentation action in the Arabian Gulf. The final report of this project has recently been completed, and it contains 10 parts covering study activities over the four years.

- Saudi Aramco Continuing Research Project:
Marine Environment Studies - Phase III, 1994-2000:
Phase III of the marine environmental study is composed of a number of elements designed to meet and address the projected environmental needs before they become major problems requiring high cost. This project will allow for continuity of research on the probable impact of Saudi Aramco operations on the marine environment and allow for conducting research in new areas including identification of primary productivity, studies on the effect of pollution on living creatures, and studies on environmentally-sound methods of disposal of the (waste)-water produced.

- Studies on the marine environment:
Preparation of maps of the habitats of living creatures:
Maps of the habitats of living marine creatures in most of the Arabian Gulf coast have already been prepared. These maps cover areas to a depth of 10 meters, and identify sensitive and productive habitats including mangroves, coral reefs, seabed grass, and mud layers. These maps help in assessing priorities for the protection of the coastline and the habitats of living creatures, and identifying the location of resources during oil spill accidents. Such maps are important for the preparation of environmental impact assessments.

- Research on the impact of dredging:
These research studies aim at assessing which short-term or long-term impacts result from dredging activities during the development of certain coastal facilities. Results indicate that the impact of dredging on the marine environment has generally been a short-lived phenomenon on adjacent areas unaffected by dredging.

- Studies on transplanting mangrove trees:
Very successful studies have been conducted on transplanting mangrove saplings to another type of soil. These trees were propagated in certain areas and produced another generation of plants. One of the objectives of the study is to verify the possibility of rehabilitating mangrove trees in areas affected by oil spills, dredging and in-filling.

- Coral reef studies
Thirteen species of Arabian Gulf coral have been studied to determine the natural and human impact on this important, highly productive ecosystem. In addition to photographing coral quadrants, cross-sections of fish and large invertebrates are also continually studied.

- Minerals traces in Arabian Gulf deposits:
These studies are conducted to investigate the distribution of traces of minerals in deposits collected from the coastal areas of the Arabian Gulf. Water samples have also been collected and analyzed. One of the main objectives of this project is identifying areas with high concentrations of such minerals and determining the primary reasons for this phenomenon.

- Study of fungal life:
Traces of minerals and content of organic pollutants on shellfish collected from most of the western coastal areas of the Arabian Gulf have been studied. This study has presented a continuing and economical method of assessing the impact of industrial facilities located along coast areas on the marine environment of the Gulf.

The UN Convention on the Law of the Sea

* The UN Convention on the Law of the Sea (1982) was signed by Saudi Arabia on 07 December 1984, and ratified on 24 April 1996.
* The Implementation of Part 11 of the UN Convention on the Law of the Sea (1984) : Saudi Arabia acceded on 24 April 1996.

Cross-Sectoral Issues

1. **Decision-Making Structure:**

The Ministry of Agriculture and Water takes charge of :

- Implementation of economic plans and programs for agriculture.
- Water development.
- Desalination, irrigation, conservation of scarce water, fisheries, animal resources and locust control.

See under "Status Report."

2. **Capacity-Building/Technology Issues:** See under "Status Report."

3. **Major Groups: No Information.**

4. **Finance: No Information.**

5. **Regional/International Cooperation: No Information.**

STATISTICAL DATA/INDICATORS

	1980	1990	Latest 199-	
Catches of marine species (metric tons)				
Population in coastal areas				
Population served by waste water treatment (% of country's total population)				
Discharges of oil into coastal waters (metric tons)				
Releases of phosphate into coastal waters (metric tons)				
Releases of nitrate into coastal waters (metric tons)				
Other data				

AGENDA 21 CHAPTER 18: APPLICATION OF INTEGRATED APPROACHES TO THE DEVELOPMENT, MANAGEMENT AND USE OF WATER RESOURCES

NATIONAL PRIORITY:

STATUS REPORT:

Protection of Quality and Supply of Fresh Water Resources:

1. Rationalization of water usage:

The following has been achieved with respect to rationalization of water usage through public awareness and use of economic mechanisms:

A. In application of Royal Order Number 3/B/6096 dated 21/4/1401 H, concerning the necessity for rationalization of water consumption, MAW undertook the following:

- published and distributed booklets, bulletins, and posters addressing all classes of society;
- prepared and distributed various sizes of annual calendars carrying statements on the rationalization of water consumption;
- educated and instructed farmers on optimal modern agricultrual methods through encouraging the use of drip irrigation, lined canals, high-efficiency irrigation equipment, and exclusion of all equipment and machinery which are proven to be less useful in saving water;
- accelerated the rationalization of water consumption through television and radio programs;
- drew up contracts with a number of specialized advertising companies for launching awareness campaigns on the rationalization of water usage by displaying large-size billboards (15 x 4 meters) mounted on 9-meter high posts and located along major roads in most towns of the Kingdom as well as displaying posters at intersections of major roads and using electronic screens, with public transportation buses being used in more than 25 towns as a means for displaying posters carrying messages urging optimal usage of water, and continued and intensive work in implementation of water consumption program to go on throughout the Sixth Five-Year Plan; annual expenditure on public awareness is estimated at about SR 3.5 million.

B. Adopting the concept which calls for usage of economic mechanisms and treatment of water as an economic commodity, water pricing for household purposes has been updated and restructured into brackets whereby the unit price of a cubic meter increases with the increase of consumption.

C. MAW took a number or steps aimed at conservation of water and rationalization of its consumption through limiting the cultivation of certain crops with high water requirements such as grains and fodder, in such a way that production should not exceed self-sufficiency in basic crops.

D. During the past year, 1416 H, the Saline Water Conversion Corporation (SWCC) held a symposium attended by more than 150 specialists from the Kingdom and abroad, on the experience of Japan in re-use of water. The Corporation actively participates in GCC committees, in particular the committee on rationalization of water and electricity consumption, as do representatives from the Ministry of Industry and Electricity, and from the Ministry of Municipal and Rural Affairs (MOMRA); this year (1417 H) there will be a symposium in the Sultanate of Oman on water loss from networks as one way of conserving water.

2. Training:

With respect to specialized labor force and intensification of training in the area of fresh water, a large number of specialists from MAW participated over the past years in scientific conferences, symposia, and training sessions inside the Kingdom and abroad. SWCC also trained a large number of its employees and new recruits both inside the Kingdom and abroad. The total number of trainees in the Kingdom was 1,722 and those abroad numbered 652 during the period 1410 to 1417 H.

3. Emergency Plans:

Emergency programs and plans have been prepared and supplied with structural facilities, for example the construction of (reservoirs) dams for emergencies for most major towns in the Kingdom. In certain locations, their capacity is 1.5 million cubic liters.

4. Protection of water resources from pollution:
With respect to measures for protecting water resources from environmental pollution and the regulations for the conservation of water issued by Royal Order Number M/34 dated 24/8/1400 H, for the effective management and protection of water from pollution, the regulations are enforced by executive regulations allowing MAW to apply measures for the protection and conservation of fresh water to be closely monitored. SWCC established a special division concerned with the environment and its affairs within the competence of its General Directorate for Research and Development, entrusted with the study of the impact of the environment on desalination plants, and their impact on the environment, with a view to maintaining the environmental criteria and standards required, in a manner compatible with the developmental responsibilities of the Corporation and enhancement of water resources in the Kingdom.

The Research and Development Center of the Corporation conducts the necessary analysis to ensure that the plants adhere to environmental criteria and standards, and monitors continually the operation of the plants with respect to smoke emitted and the exhausted water that is returned to the sea as well as the process of handling, keeping and destroying various chemical materials.

5. With respect to transfer of technology related to fresh water resources, the Kingdom is in continual contact with advanced countries in connection with modern technologies related to water resources such as re-cycling sewage water, treatment of salt water, construction of dams, reservoirs and networks, and the use of mathematical models for ground and surface water through active participation in relevant conferences and symposia as well as through joint programs with certain advanced countries where the transfer of technology and training are the most important objectives.

6. Dissemination of water information:
With respect to water information and its dissemination, MAW has a large database containing information on ground, surface, and rain water, in addition to climatic data. Recently a computer program has been designed for the organization, classification, and processing of information and préparation for dissemination, in addition to available information in the form of detailed water resources studies which are continually updated. MAW has booklets , bulletins, and atlases which are published and disseminated, such as Water Atlas, Soil Atlas, Climate Atlas, and Land Resources Atlas.

7. Difficulties and constraints:
From actual review of Agenda 21 relative to the achievements of the Kingdom in the area of the development and conservation of water resources, it is clear that in certain instances these achievements are at least similar to the proposed solutions, if they do not surpass them. Since water is a vital resource that concerns all agricultural, industrial and construction sectors, there is always a pressing need for continued advancement and development through endorsement of projects and studies proposed in the Sixth Five-Year Plan of the Ministry. If there are constraints, they are embodied in the difficulty of approval of the necessary funds for implementation of the Ministry's plans and projects in the area of water.

8. Program for monitoring the disposal of sewage water:
When disposing of sewage water, Saudi Aramco generally adhered to specifications applicable in the Kingdom, including:
1. Physiochemical pollutants
2. Organic pollutants
3. Inorganic pollutants
4. Biological pollutants
The date collected are analyzed and compiled into an annual report, a copy of which is sent to MEPA to indicate adherence to the applicable specifications and regulations.

9. Program for monitoring groundwater:
This program is designed to uncover potential groundwater pollution at facilities for storage and disposal of waste, at industrial plants, and at surface facilities for the disposal of drainage water from sewage (sprinkler fields), with a view to protection of precious water resources. Groundwater is also monitored in the vicinity of extraction sites with the purpose of management of the quality and quantity of resources in areas of high water tables, and in aquifiers in oil fields, in order to discover possiblities for seepage/infiltration.

Cross-Sectoral Issues

1. **Decision-Making Structure:**
   Saline Water Conversion Corporation (SWCC) functions as the principal desalination complex.
   See under "Status Report."

2. **Capacity-Building/Technology Issues:** See under "Status Report."

3. **Major Groups: No Information.**

4. **Finance:** See under "Status Report."

5. **Regional/International Cooperation: No Information.**

STATISTICAL DATA/INDICATORS

	1980	1990	Latest 199-	
Fresh water availability (total domestic/external in million m^3)				
Annual withdrawal of freshwater as % of available water				
Other data				

AGENDA 21 CHAPTER 19: ENVIRONMENTALLY SOUND MANAGEMENT OF TOXIC CHEMICALS, INCLUDING PREVENTION OF ILLEGAL INTERNATIONAL TRAFFIC IN TOXIC AND DANGEROUS PRODUCTS

NATIONAL PRIORITY:	
STATUS REPORT: Gradual Phasing-out of polychlorinated biohenyls (PCBs): Saudi Aramco has initiated a program for the gradual limiting and phasing-out of the use of polychlorinated biohenyls (PCBs) from all electric transformers and capacitor oils in vies of the high toxicity of these compounds. In addition to removal of these chemicals, there plans to replace old equipment containing more than 50 parts per million of PCBs. Company regulations prohibit procurement and installation of equipment containing these compounds.	

Cross-Sectoral Issues

1. **Decision-Making Structure:**
The Ministry of Health takes charge of health care and hospitals.

2. **Capacity-Building/Technology Issues:**
Special Programs for Chemical Safety (CHEMSAFE):
MOH conducted a specialized national training course in the area of chemical safety, disaster preparedness, and management in collaboration with the World Health Organization (WHO). Officials and specialists from relevant ministries and agencies participated with the aim of developing skills in the areas of chemical safety, the role of curative and preventive medicine in preparedness for addressing chemical accidents, exchange of information, finding a coordinated approach among relevant agencies, and raising public awareness of chemical safety issues. Coordination with WHO is under way with a view to establishing an information network for the environment, chemical safety, and addressing emergencies.

The Chemical Emergency Response Team:
This team is a task force formed to respond to emergencies such as chemical spills or leakage. Among the activities of this team is frequent training on emergency situations as well as regular trainng of company staff.

3. **Major Groups: No Information.**

4. **Finance: No Information.**

5. **Regional/International Cooperation:**
Coordination with WHO is under way with a view to establishing an information network for the environment, chemical safety, and addressing emergencies.

STATISTICAL DATA/INDICATORS

AGENDA 21 CHAPTER 20: ENVIRONMENTALLY SOUND MANAGEMENT OF HAZARDOUS WASTES, INCLUDING PREVENTION OF ILLEGAL INTERNATIONAL TRAFFIC IN HAZARDOUS WASTES

NATIONAL PRIORITY:

STATUS REPORT:

- Program for solid waste and hazardous waste:
Company operations produce both human and industrial waste. Solid waste resulting from human use is disposed of in approved hygienic waste-disposal facilities, whereas industrial waste is normally screened and handled according to acceptalbe practice in the industry. Saudi Aramco has always stressed the development of safe procedures for handling hazardous materials, and reduction in the waste produced. The company has implemented the following projects:
- Installation of mixers in crude oil tanks in order to reduce the amount of deposited oil sludge that needs to be removed.
- Installation of cells for oxidation of highly toxic tetra-ethyl lead, and converting it into inorganic lead with low toxicity that can be buried safely in special disposal sites.
- Construction of a special storage facility for handling expired hazardous materials.

- Program for minimization of waste:
This program aims at minimizing the waste produced by plant operations through reduction of waste at source, modification of the manufacturing process, replacement of the materials used, separation of waste, and better management as well as reuse and re-processing of waste. At present, depending on its nature, Saudi Aramco handles waste in a number of ways, such as:
- Impoundment:
Impoundment in categories 1 and 2 are both used for the disposal of environmentally inactive and non-toxic solid waste as well as for certain hazardous materials that do not constitute a threat to groundwater such as asbestos, chemical catalysts used in refineries, and expired medical materials. Industrial waste from Saudi Aramco plants is handled by a number of contractors who use both impoundment categories, 1 and 2, for disposal.
- Treatment of waste:
Small quantities of oil sludge produced in company facilities are treated in waste treatment units constructed for this purpose in numerous locations.
- Aeration:
Tetra-ethyl lead sludge produced in benzene tanks is a particularly hazardous toxic, and water-soluble material. This sludge is treated in a special facility where tetra-ethyl lead is oxidized, converted into inorganic lead with low toxicity which is insoluble in water, and impounded by the category 1 method.
- Storage:
When the above-mentioned methods are inadequate for safe disposal of hazardous materials, certain materials may be stored in surplus chemical warehousing and handling facilities until a suitable way is found to dispose of them. Detailed procedures and guidelines formulated by the company provide for waste handling, monitoring and control.

Existing Environment Activities and Programmes:
These activities are basically related to monitoring of the quality of air and wastewater, management of hazardous materials, and response to accidents of oil spills. They also include assessment of Saudi Aramco operations, study of the marine environment, protection of groundwater sources, and determination of adherence to the regulations of the company and of the Kingdom.

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal
* Saudi Arabia signed and ratified on 22 March 1989.
* Saudi Arabia confirmed and ratified on 07 March 1990.

Additional comments relevant to this chapter

Cross-Sectoral Issues

1. Decision-Making Structure:

Committees Specialized in Hazardous and Restricted Materials:

A number of committees and task forces have been formed to study various matters related to the environment and safety with respect to handling and controlling hazardous materials:

- The Committee for Protection Against Radiation:

This committee is charged with the safe handling, storing, and disposing of radioactive materials.

- The Chemical Emergency Response Team:

This team is a task force formed to respond to emergencies such as chemical spills or leakage. Among the activities of this team is frequent training on emergency situations as well as regular training of company staff.

- The Committee for Coordination on Chlorofluorocarbons (CFCs):

The Committee for Coordination on Chlorofluorocarbons (CFCs) monitors the company's activities related to the consumption, handling, and keeping of such materials, and formulates strategies in accordance with the provision of the Montreal Protocol. An example of the activities of this committee is Saudi Aramco's program for the conservation of cooling materials, which sets mandatory requirements for the handling and re-processing of CFCs. Implementation was recently initiated for a technical program and another for monitoring consumption of chillers in Aramco. The committee alternatives to such ozone-depleting materials. There are similar efforts to use halon gases.

- The Committee for Hazardous Materials:

This Committee gives opinions on plans for the appropriate use and disposal of all hazardous materials. It participates in the preparation and execution of such plans. Among the terms of reference of the committee are oversight and coordination of the relevant committees and task forces formed for this purpose, such as the above-mentioned committees charged with the control and management of hazardous materials. The committee also acts as an umbrella to ensure effective coverage of all stages and matters related to hazardous materials.

2. Capacity-Building/Technology Issues:

See above.

3. Major Groups: No Information.

4. Finance: No Information.

5. Regional/International Cooperation:

Saudi Aramco is a founding member of a number of regional and international organizations concerned with oil spill control activities. Among these organizations are the Organization for Join Cooperation of Oil Companies Operating in the (Arabian) Gulf, which is concerned with the protection of Gulf resources in face of oil pollution, and the Oil Spill Services Center in the United Kingdom, an organization which renders response services to oil spills worldwide.

-Environmental assessment program:

This program is concerned with implementation of Saudi Aramco's plan for the protection of the environment. It is designed to provide company departmental managers with assessment of the adequacy of the environmental performance of their facilities, and of their adherence to applicable environment regulations; and to submit solutions and proposals for implementing essential environmental improvements economically.

The scope of action of the program covers primarily areas of air quality, solid waste, and hazardous chemical materials, as well as the prevention and control of oil spills. The program includes assessment of environmental hazards in each facility. It conducts surveys of these facilities to determine adherence to regulations applied; carries out joint monitoring in order to solve environmental problems; and follows up implementation of recommendations prepared by the survey team. At present, more than 40 environmental assessments have been successfully completed on exploration, production, refining and distribution facilities.

AGENDA 21 CHAPTER 21: ENVIRONMENTALLY SOUND MANAGEMENT OF SOLID WASTES AND SEWAGE-RELATED ISSUES

NATIONAL PRIORITY:	
STATUS REPORT: Industry 1. Adherence to Environmental Considerations in Industrial Projects: New plants with potential impact on the environment have been obliged to conduct studies on environmental impact assessment in adherence to Agenda 21 requirements. 2. Encouragement of Production of Environmentally-desirable Products, and Re-use and Recycling Industrial Waste: Certain plants have adopted the principle of clean production, for example the companies of SABIC (Saudi Arabian Basic Industries Corporation) and those of other basic industries. Plans are in place to achieve this objective. Plants dispose of hazardous waste through environmentally qualified companies, into specialized waste-disposal dumps. An environmentally-qualified company, approved by the Administration (MEPA), is establishing an incinerator for hazardous waste that cannot be disposed of in the hazardous waste dump. This incinerator is still at the experimental stage.	

Cross-Sectoral Issues

1. **Decision-Making Structure:**
   The Meteorology and Environmental Protection Agency takes charge of meteorology and environment.

2. **Capacity-Building/Technology Issues:**
   Industry

1. Adherence to Environmental Considerations in Industrial Projects:

New plants with potential impact on the environment have been obliged to conduct studies on environmental impact assessment in adherence to Agenda 21 requirements.

2. Encouragement of Production of Environmentally-desirable Products, and Re-use and Recycling Industrial Waste:

Certain plants have adopted the principle of clean production, for example the companies of SABIC (Saudi Arabian Basic Industries Corporation) and those of other basic industries. Plans are in place to achieve this objective. Plants dispose of hazardous waste through environmentally qualified companies, into specialized waste-disposal dumps. An environmentally-qualified company, approved by the Administration (MEPA), is establishing an incinerator for hazardous waste that cannot be disposed of in the hazardous waste dump. This incinerator is still at the experimental stage.

3. **Major Groups: No Informaltion.**

4. **Finance: No Information.**

5. **Regional/International Cooperation: No Information.**

STATISTICAL DATA/INDICATORS

	1980	1990	Latest 199-	
Generation of industrial and municipal waste (t)				
Waste disposed(Kg/capita)				
Expenditure on waste collection and treatment (US$)				
Waste recycling rates (%)				
Municipal waste disposal (Kg/capita)				
Waste reduction rates per unit of GDP (t/year)				
Other data				

AGENDA 21 CHAPTER 22: SAFE AND ENVIRONMENTALLY SOUND MANAGEMENT OF RADIOACTIVE WASTES

NATIONAL PRIORITY:	
STATUS REPORT: No information.	

Cross-Sectoral Issues

1. **Decision-Making Structure:**
The Committee for Protection Against Radiation is charged with the safe handling, storing, and disposing of radioactive materials.

2. **Capacity-Building/Technology Issues: No Information.**

3. **Major Groups: No Information.**

4. **Finance: No Information.**

5. **Regional/International Cooperation: No Information.**

STATISTICAL DATA/INDICATORS

AGENDA 21 CHAPTERS 23-32: MAJOR GROUPS

The role of major groups are also covered under the various chapters of Agenda 21. The following is a summary of main objectives outlined in Agenda 21. Please check the appropriate boxes and describe briefly any important steps or obstacles.

STATUS REPORT ON PARTICIPATION BY MAJOR GROUPS AT THE NATIONAL AND LOCAL LEVELS	
Ch. 24: GLOBAL ACTION FOR WOMEN TOWARDS SUSTAINABLE AND EQUITABLE DEVELOPMENT. **The Convention on the Elimination of All Forms of Discrimination Against Women : No Information.**	
24.a Increasing the proportion of women decision makers. **No information.**	
24.b assessing, reviewing, revising and implementing curricula and other educational material with a view to promoting dissemination of gender-relevant knowledge. **No Information.**	
24.c and 24.d formulating and implementing policies, guidelines, strategies and plans for achievement of equality in all aspects of society including issuing a strategy by year 2000 to eliminate obstacles to full participation of women in sustainable development. **No Information.**	
24.e establishing mechanisms by 1995 to assess implementation and impact of development and environment policies and programmes on women : **No Information.**	
Brief comments on this chapter (maximum 100 words) (please, do not exceed this page): **No Information.**	

STATUS REPORT ON PARTICIPATION BY MAJOR GROUPS AT THE NATIONAL AND LOCAL LEVELS

Ch. 25: CHILDREN AND YOUTH IN SUSTAINABLE DEVELOPMENT.

25.a establishing processes that promote dialogue between the youth and government at all levels and mechanisms that permit youth access to information and opportunity to present their views on implementing A21.

No Information.

Describe their role in the national process:

25.b reducing youth unemployment : **No Information.**

25.c ensuring that by year 2000 more than 50% of youth -- gender balanced -- have access to appropriate secondary education or vocational training. **No Information.**

Brief comments on this chapter (maximum 100 words) (please, do not exceed this page):

No Information.

STATUS REPORT ON PARTICIPATION BY MAJOR GROUPS AT THE NATIONAL AND LOCAL LEVELS

Ch. 26: RECOGNIZING AND STRENGTHENING THE ROLE OF INDIGENOUS PEOPLE AND THEIR COMMUNITIES.

26.a establishing a process to empower indigenous people and their communities -- through policies and legal instruments:
No information.

26.b strengthening arrangements for active participation in national policies
No information.

26.c involving indigenous people in resource management strategies and programmes at the national and local level.
No information.

Brief comments on this chapter (maximum 100 words) (please, do not exceed this page):
No information.

Ch. 27: STRENGTHENING THE ROLE OF NON-GOVERNMENTAL ORGANIZATIONS: PARTNERS FOR SUSTAINABLE DEVELOPMENT.

27.a developing mechanisms that allow NGOs to play their partnership role responsibly and effectively. **No information.**

27.b reviewing formal procedures and mechanisms to involve NGOs in decision making and implementation. **No information.**

27.c promoting and allowing NGOs to participate in the conception, establishment and evaluation of official mechanisms to review Agenda 21 implementation. **No information.**

STATUS REPORT ON PARTICIPATION BY MAJOR GROUPS AT THE NATIONAL AND LOCAL LEVELS	
27.d establishing a mutually productive dialogue by 1995 at the national level between NGOs and governments. **No information.** **Brief comments on this chapter (maximum 100 words) (please, do not exceed this page):** **No information.**	

STATUS REPORT ON PARTICIPATION BY MAJOR GROUPS AT THE NATIONAL AND LOCAL LEVELS	
Ch. 28: LOCAL AUTHORITIES' INITIATIVES IN SUPPORT OF AGENDA 21. **28.a** encouraging local authorities to implement and monitor programmes that aim to ensure participation of women and youth in local decision making. **No information.** **Brief comments on this chapter (maximum 100 words) (please, do not exceed this page):** **No information.**	
Ch. 29: STRENGTHENING THE ROLE OF WORKERS AND THEIR TRADE UNIONS. **29.a** full participation of workers in implementation and evaluation of A21. **No information.** **29.b** (By year 2000, (a) promoting ratification of ILO conventions; (b) establishing bipartite and tripartite mechanism on safety, health and sustainable development; (c) increasing number of environmental collective agreements; (d) reducing occupational accidents and injuries; (e) increasing workers' education and training efforts. **No information.** **Brief comments on this chapter (maximum 100 words) (please, do not exceed this page):** **No information.**	

STATUS REPORT ON PARTICIPATION BY MAJOR GROUPS AT THE NATIONAL AND LOCAL LEVELS

30: STRENGTHENING THE ROLE OF BUSINESS AND INDUSTRY.

30.a increasing the efficiency of resource use, including reuse, recycling, and reduction of waste per unit of economic output.
No Information.

30.b encouraging the concept of stewardship in management and use of natural resources by entrepreneurs.
No Information.

List any actions taken in this area:

30.c increasing number of enterprises that subscribe to and implement sustainable development policies.
No information.

Brief comments on this chapter (maximum 100 words) (please, do not exceed this page):
No information.

STATUS REPORT ON PARTICIPATION BY MAJOR GROUPS AT THE NATIONAL AND LOCAL LEVELS

Ch. 31: SCIENTIFIC AND TECHNOLOGICAL COMMUNITY.

31.a improving exchange of knowledge and concerns between s&t community and the general public.
Scientific community has already established ways in which to address the general public and deal with sustainable development.

No Information.

31.b developing, improving and promoting international acceptance of codes of practice and guidelines related to science and technology and its role in reconciling environment and development.

No Information.

Brief comments on this chapter not already described in chapter 35 (maximum 100 words) (please, do not exceed this page):

No Information.

Ch. 32: STRENGTHENING THE ROLE OF FARMERS.

32.a promoting and encouraging sustainable farming practices and technologies.

No Information.

32.b developing a policy framework that provides incentives and motivation among farmers for sustainable and efficient farming practices.

No Information.

32.c enhancing participation of organizations of farmers in design and implementation of sustainable development policies.

No Information.

Brief comments on this chapter (maximum 100 words) (please, do not exceed this page):

No Information.

AGENDA 21 CHAPTER 33: FINANCIAL RESOURCES AND MECHANISMS

Financial resources and mechanisms are also covered under each sectoral chapter of Agenda 21 where relevant. This summary highlights broader national financial policies, domestic and external (including ODA)

NATIONAL PRIORITY:

STATUS REPORT: No Information.

CHANGES IN NATIONAL BUDGET TO ADDRESS SUSTAINABLE DEVELOPMENT:

No Information.

NEW ECONOMIC INSTRUMENTS:

No Information.

ELIMINATION OF ENVIRONMENTALLY UNFRIENDLY SUBSIDIES:

No Information.

ODA policy issues

No Information.

STATISTICAL DATA/INDICATORS						
	1992	**1993**	**1994**	**1995**	**1996**	
ODA funding provided or received (Total US$million)						
	Average for 92-93		**Average for 94-96**			
Net flow of external capital from all sources as % of GDP						
Other data						

AGENDA 21 CHAPTER 34: TRANSFER OF ENVIRONMENTALLY SOUND TECHNOLOGY, COOPERATION AND CAPACITY-BUILDING

Transfer of environmentally sound technology, cooperation and capacity-building is also covered under each sectoral chapter of Agenda 21 where relevant. This summary highlights broader national policies and actions relating to chapter 34.

NATIONAL PRIORITY:

STATUS REPORT ON LINKS BETWEEN NATIONAL, REGIONAL AND INTERNATIONAL INFORMATION NETWORKS/SYSTEMS:

No Information.

MEANS OF IMPLEMENTATION:

No Information.

1. Describe any work being undertaken at the national or local level regarding efforts to promote clean production processes and/or the concepts of eco-efficiency. These processes may include training, preferential financial arrangements, information dissemination and changes in legal or regulatory frameworks.

No Information.

2. Provide information on the adoption of environmental management systems. National reaction to environmental management system standards such as the ISO 14000 Series and others. Please note efforts made at the national level to promote their adoption and the creation of certification infrastructure in order to facilitate access to these standards to local industry.

No Information.

3. List and describe programs or work under way to facilitate the transfer of ESTs to small and medium sized enterprises. Please note efforts to facilitate access to financial resources and other transfer strategies.

No Information.

AGENDA 21 CHAPTER 35: SCIENCE FOR SUSTAINABLE DEVELOPMENT

NATIONAL PRIORITY:

STATUS REPORT ON NATIONAL SCIENTIFIC KNOWLEDGE, RESEARCH NEEDS AND PRIORITIES:

No Information.

STEPS TAKEN TO ENHANCE SCIENTIFIC UNDERSTANDING, IMPROVE LONG TERM SCIENTIFIC ASSESSMENT, BUILDING OF CAPACITY AND CAPABILITY:

No Information.

STATISTICAL DATA/INDICATORS			
		Year	
Number of scientists, engineers and technicians engaged in research and experimental development	#	19--	
Total expenditure for research and experimental development (US$eq.)	$	19--	
Other data			

AGENDA 21 CHAPTER 36: PROMOTING EDUCATION, PUBLIC AWARENESS AND TRAINING

NATIONAL PRIORITY:

STATUS REPORT:

Refer to Chapter 8 for details.

a) Reorientation of education towards sustainable development:

- In collaboration with the Ministry of Education and the General Presidency for Girls' Education, MEPA has incorporated into schools curricula a number of environmental concepts.

b) Increasing public awareness :

- MEPA has published and disseminated in the Kingdom and abroad the second edition of "Protection of the Environment in Islam" in Arabic, English and French, in collaboration with the International Union of Conservation of Nature (IUCN).

c) Promoting training:

- MEPA supported the Saudi Environmental Awareness Program by conducting a number of training sessions for teachers of various educational levels in order to explain posters published on the environment by UNESCO.

ROLE OF MAJOR GROUPS:

No Information.

FINANCING AND COST EVALUATION OF THE LABOUR ACTIVITIES:

No Information.

STATISTICAL DATA/INDICATORS				
	1980	1990	Latest 199-	
Adult literacy rate (%) Male				
Adult literacy rate (%) Female				
% of primary school children reaching grade 5 (1986-97)				
Mean number of years of schooling				
% of GNP spent on education				
Females per 100 males in secondary school				
Women per 100 men in the labour force				
Other data				

AGENDA 21 CHAPTER 37: NATIONAL MECHANISMS AND INTERNATIONAL COOPERATION FOR CAPACITY-BUILDING IN DEVELOPING COUNTRIES

National capacity building is also covered under sectoral chapters.
Donors: You may wish to describe here how Agenda 21 has influenced your ODA policies in this area.
Developing countries: You may wish to describe any new national mechanisms for capacity building - and any changes in technical cooperation.

NATIONAL PRIORITY:	
STATUS REPORT ON NATIONAL ENDOGENOUS CAPACITY BUILDING: No Information.	

AGENDA 21 CHAPTER 38: INTERNATIONAL INSTITUTIONAL ARRANGEMENTS

Ch. 38: Brief summary of any particular UN System response affecting this country/state:

See various chapters.

AGENDA 21 CHAPTER 39: INTERNATIONAL LEGAL INSTRUMENTS AND MECHANISMS

Ch. 39: International Legal Instruments are covered under the relevant sectoral chapters. This is a listing of major agreements/conventions (not already covered) entered into and relevant to Agenda 21: **No Information.**	

AGENDA 21 CHAPTER 40: INFORMATION FOR DECISION-MAKING

This chapter is also covered under sectoral and other chapters of this profile. The matrix below gives an overview of how national authorities rate the available information for decision making.

Rating of available data and information suitable for decision-making

Agenda 21 Chapters		Very good	Good	Some good data but many gaps	Poor	Remarks
2.	International cooperation and trade					
3.	Combating poverty					
4.	Changing consumption patterns					
5.	Demographic dynamics and sustainability					
6.	Human health					
7.	Human settlements					
8.	Integrating E & D in decision-making					
9.	Protection of the atmosphere					
10.	Integrated planning and management of land resources					
11.	Combating deforestation					
12.	Combating desertification and drought					
13.	Sustainable mountain development					
14.	Sustainable agriculture and rural development					
15.	Conservation of biological diversity					
16.	Biotechnology					
17.	Oceans, seas, coastal areas and their living resources					
18.	Freshwater resources					
19.	Toxic chemicals					
20.	Hazardous wastes					
21.	Solid wastes					
22.	Radioactive wastes					
24.	Women in sustainable development					
25.	Children and youth					
26.	Indigenous people					
27.	Non-governmental organizations					
28.	Local authorities					
29.	Workers and trade unions					
30.	Business and industry					
31.	Scientific and technological community					
32.	Farmers					
33.	Financial resources and mechanisms					
34.	Technology, cooperation and capacity-building					
35.	Science for sustainable development					
36.	Education, public awareness and training					
37.	International cooperation for capacity-building					
38.	International institutional arrangements					
39.	International legal instruments					
40.	Information for decision-making					

Additional Comments
No Information.

STATISTICAL DATA/INDICATORS				
	1980	1993	Latest 199-	
Number of telephones in use per 100 inhabitants				
Other data				